· ESTABLISHED 1852 ·

H. H. COE. F. WILKES.

COE & WILKES,

MANUFACTURERS OF

Improved Rotary Cut Veneer Machines

Improved Automatic Feed Veneer Clippers

· AND

Special Machinery for Working Veneer Products,

PAINESVILLE, OHIO.

Werner Ptg. & Litho. Co., Akron.

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* * *

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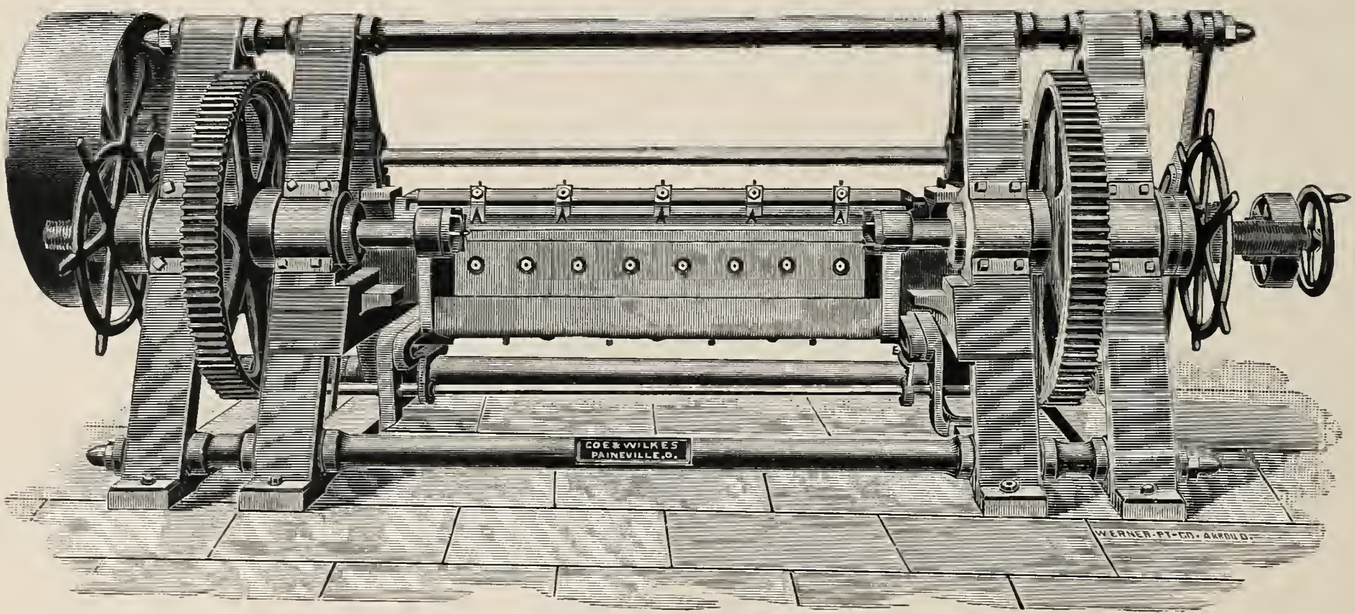

COE & WILKES
PAINEVILLE, O.
WERNER-PT-CO. AKRON O.

VENEER MACHINE—HEAVY PATTERN.

Diameter of Swing—42 inches. Length of Knife—52 inches. Weight—14,500 pounds.

ROTARY CUTTING VENEER MACHINE AND CLIPPERS.

The foregoing cut, though taken from a medium sized heavy pattern machine, presents in a **general way** the design, style, construction and working plan of all our machines, whether of heavy or light patterns, or of large or small diameters of swing, or of long or short cut.

They are an aggregate of well tested constructions and patented improvements, adopted after years of experience in designing, building, handling and adapting them to the rapid production of best quality of all practical thicknesses of **Thin Cut Lumber,** which has become the principal stock of a great variety of manufacturers.

DESIGN.

They have a broad floor base, **are "self-contained,"** having a triangular vertical base, firmly secured at the angles, so that all working stress is contained within this so-called vertical base, free from "side leverage" or "top leverage," and from any tendency to spring or give under labor. All parts are accessible without the removal of parts.

When free from attachments, the machine is open to the spindles and to the knife.

Points of greatest strain are connected, not by bolted joints, but by solid casting.

Some heavy patterns carry the pinion shaft or driving shaft below instead of on the side, as shown in cuts. Many of the lighter patterns are so constructed, when preferred.

MATERIAL AND CONSTRUCTION.

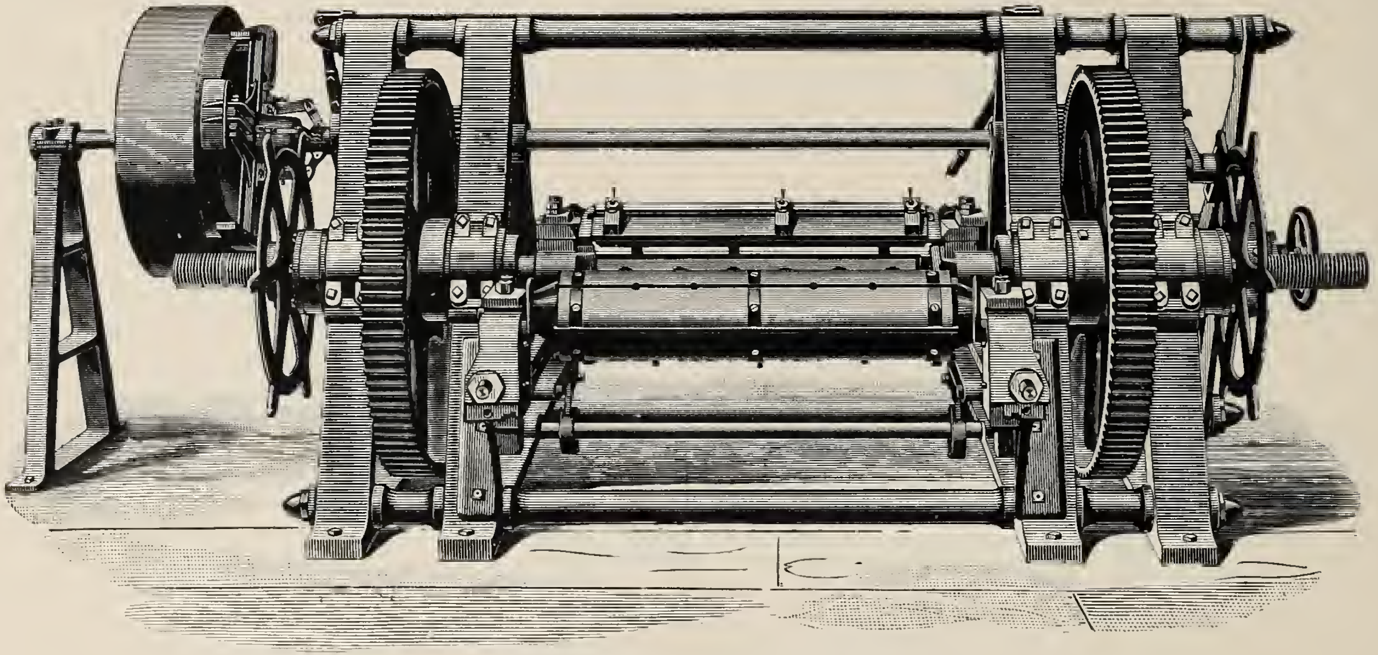
All castings in them are made from best grade of strong close foundry iron.

The spindles are of forge hammered steel and are not subject to wear, being carried in long sleeves with bearings outside of sleeves.

All bearings are ample in dimension, are lined with best wearing metals, and are adjustable to compensate for wear.

All screws are of steel and fitted with boxings of Phosphor Bronze or best box metal.

The bevel gears on feed screws are of mild steel casting.



VENEER MACHINE OF THE SHORTER CLASS.

Equipped with Impression Roller.

Photographed from a 42 inch Swing; 36 inch Length of Knife; Weight, 6,600 pounds.

All feed gears and change gears are of cut gearing.

All shafting is of polished steel.

Several patterns of "driving chucks" are made—mostly of steel. The kind of timber to be cut, the thickness of stock to be cut, the diameter and length of logs to be worked, dictate in a measure the sizes and pattern of driving chucks most competent.

PROPORTIONS.

Machines of the shorter class and smaller diameters of swing, required for thin cutting only (¼" thickness and less), are made fully competent in light patterns at less cost. The metal is so distributed as to secure the greatest strength and solidity. While the light patterns have the power and strength for much heavier work and parties running them often do heavier work on them, yet they lack that firmness and solidity of the heavy patterns, which is so essential to the producing of best thick stock.

As diameter of swing and length of cut are increased, proportions and weights are rapidly increased.

The heavy patterns, while they are competent to cut the finest of thin stock, are also capable of producing the best stock of any practical thickness. They are also massive enough and strong enough to endure, without breakage of machine, the shocks incident to the working of imperfect timber, or timber having "shakes," "ring shakes," spits of soft centers.

GENERAL EQUIPMENTS.

All machines to be driven by belt are equipped with friction clutch drive pulleys, of sufficient power to drive the machine to its full capacity, with an ordinary length slack belt, by which they can be instantly stopped and can be started again without withdrawing the knife from the log.

The main knife is clamped, as in a vise, between two straight solid iron surfaces, covering the whole surface of knife, up to the necessary clearance of knife from the log and stock, preventing all tendency of the knife to spring.

Two main knives are furnished with each machine and adjustable dividing, trimming, scoring and chamfering knives are provided for kinds of stock requiring them.

Logs can be dogged by either the power of the machine, or by hand, at will.

An independent, fast forward and back power movement to the knife bar (not shown in cuts) is provided, by which the machine, whether running or not, can be "opened" in a few seconds to receive a new log.

Brass tablets are sent with each shipment, noting the various thicknesses the machine is designed to cut, and designating the arrangement of gears to cut the same.

Machines can be equipped for any specified standard thicknesses.

All our machines are equipped with Coe's patent.

AUTOMATIC CHANGE OF PITCH OF KNIFE.

A great relief in cutting all kinds of stock and especially valuable and necessary in cutting high grade **thick** stock.

It is so constructed that while the knife is solidly clamped, its cutting angle can be varied without changing thickness.

It places the control of the pitch of knife in the hands of the operator at all times, without stopping the machine to adjust it.

A trial movement of levers, while the machine is running, will show him by smoothness of cut and quality of stock, where the knife is pitched to the proper cutting angle. A further movement of levers, as the log becomes smaller, soon determines the ratio of change of pitch necessary to maintain that cutting angle on all circumferences of log; in other words, soon determines the ratio of change of pitch necessary to maintain an equal pressure against the log side of knife through all diameters of log. When the proper cutting angle and change of pitch of knife are thus determined and the levers are made fast, the same angle and ratio are maintained automatically, until a change of condition, such as the dulling of the knife, a change of thickness of cut, or the putting in of a knife with a different bevel, may demand a change of pitch. A decreasing ratio of change can be obtained and is sometimes desirable. In cutting very thick stock from logs not sufficiently steamed, where if from the smaller diameter, the stock is cut too solid, it would so tend to the cylindrical form, that it could not be flattened without spliting it, a decreased ratio of change of pitch can be quickly obtained that will cut from small diameters, "loose" enough to make it flexible. This feature, being properly comprehended and used by the operator, enables him, in an easy and natural way, to produce a uniformly good quality of stock **from all diameters** of log, that cannot be produced with a knife of fixed pitch except by the application of external force or forced appliances.

The operator can thus always control his knife to his best judgment. A knife so controlled will keep its edge longer. A knife thinner at the edge can be used. Friction is greatly reduced. Less power is required. There is less stress on the "driving chucks." The office of "guage bar" or "pressure bar" is reduced to a minimum.

Fair merchantable work can be produced from timber imperfectly steamed or "boiled" (which is the condition of much of the timber cut).

From timber properly steamed or "boiled" can be produced stock as sound in texture; as smooth in surface, as uniform in thickness from all sizes of logs, as it is possible to produce.

The Improved Clipper.

FOR REDUCING VENEER CUT STOCK TO MANUFACTURING AND MERCHANT WIDTHS.

The cuts on pages 8 and 10 illustrate the design in medium weight of pattern of clippers built in lengths of cut three to five feet, and in heavy patterns of clippers built in lengths of cuts six feet and upwards.

They have the merits of good design and thorough construction, and adaptability to the cutting of any shade of widths from 0 upwards with uniformity and rapidity.

When furnished with veneer machines, the length of cut is usually made the same as that of the veneer machine. Standard patterns of 1891 are in lengths of cut 36″, 42″, 48″, 52″, 62″, 72″, 78″, 82″, 88″ and 100″.

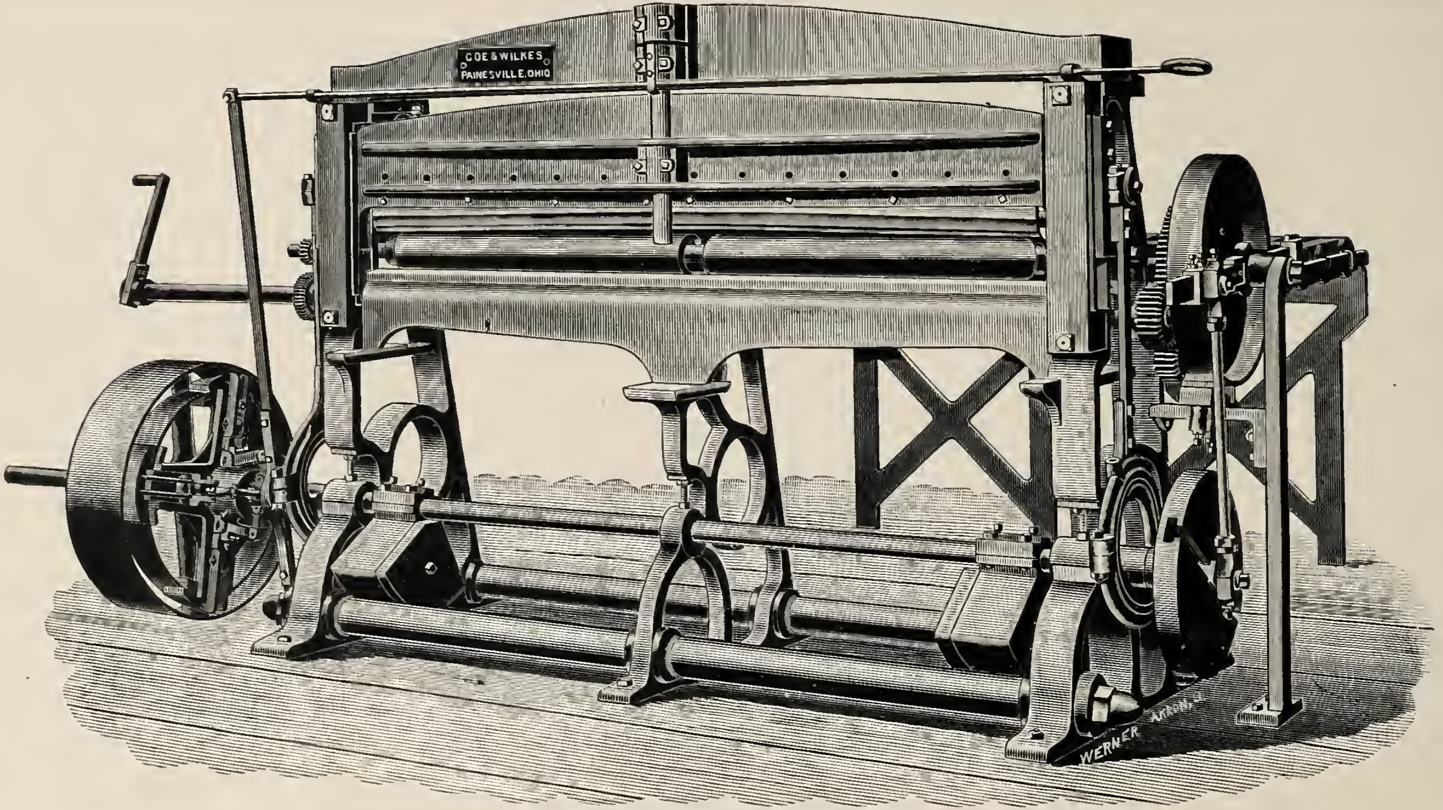
Other lengths will be added as demanded.

They have a shear cut, leaving the edges of stock *square, solid, smooth and clean* ("without strings").

They will feed and cut from a single thin sheet up to a thick bed of sheets.

They are equipped with either a continuous motion, automatic feed, or with hand feed to a stop on receiving table and stop motion to machine, or *with both*, to be used at will, thus covering any range of widths.

The knife having a reciprocating movement, the feed is necessarily intermittent. Intermittent feed has a practical limit of speed at which veneer stock will endure to feed with accuracy, and that limit of speed is in proportion to the width of stock being cut. When the clipper is required to cover a wide range of automatic feed, we interpose between the power and the clipper a *friction speed change*, by which the speed can be changed three hundred per cent. without stoppage of machine; thus the highest speed at which any certain



SIX FOOT SIX INCH CLIPPER.

WEIGHT—4,000 pounds.

width of stock can be fed with accuracy is quickly found and fixed. For many kinds of stock good practice favors a limited range of automatic feed (as from 0 to 4″, 6″, or even 8″), at a fixed speed, and hand feed for from 4″, 6″, or 8″ upwards. The latter practice delivers the stock in even, square, uniform piles, easily and quickly handled, stowed or conveyed, with least injury from handling.

The feed works are adjustable to any shade of width.

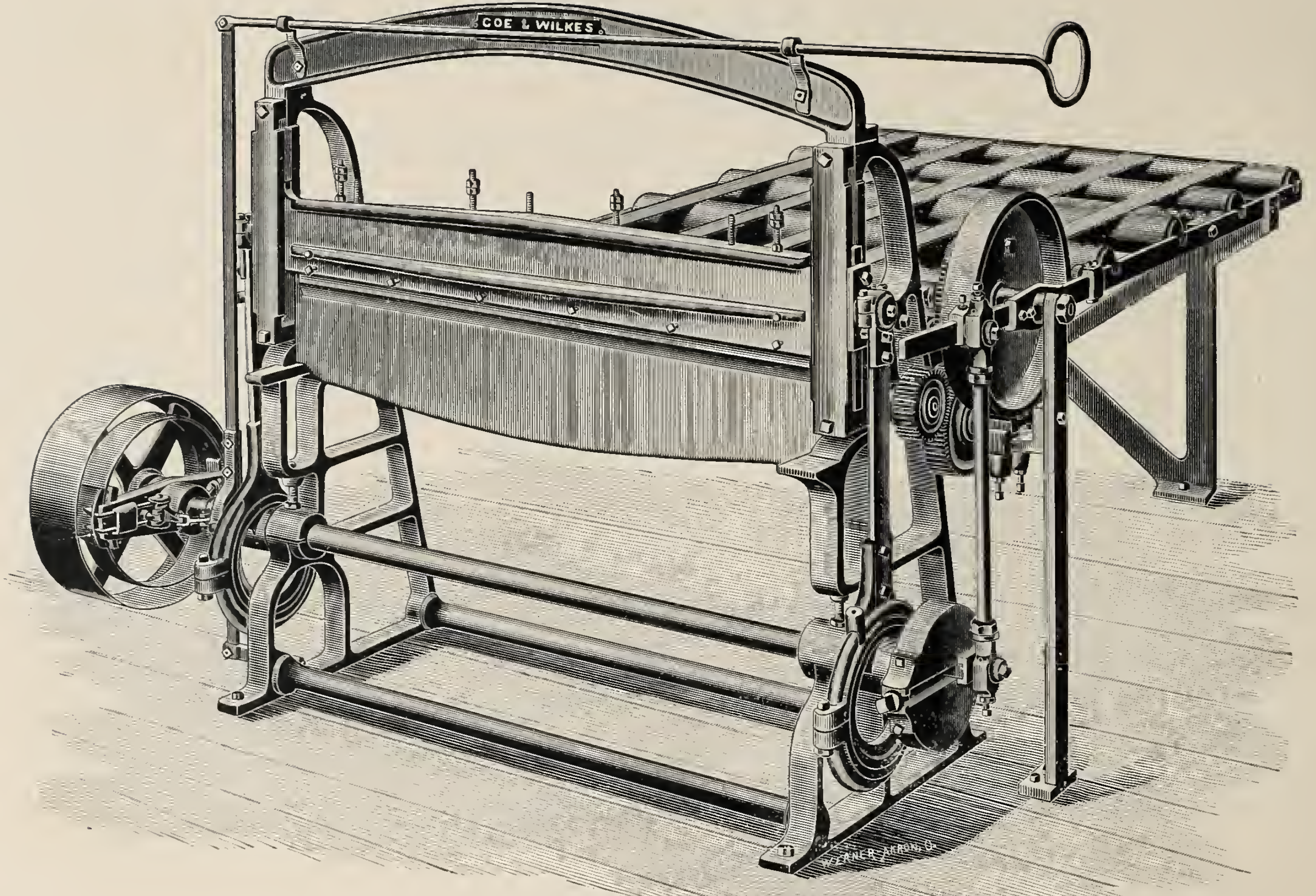
They are constructed with an **automatic, self-adjusting, positive acting, nipper** feed, an easy combination of feed rollers and an endless belt, **carrying** feed table, the belts being actuated by the feed rollers, carrying the stock being cut, instead of drawing it over a stationary table, constructions which contribute to accuracy and uniformity of work.

On receipt of information as to the length and range of **veneer division** work required to be done, we shall be pleased to quote specifications and equipment of clippers best adapted to do the same, and name lowest figures.

ROLLER CUTTERS.

For very long stock and large quantities of uniform width of stock, a roller cutter set behind the veneer machine, with speed timed to the run of the sheet from the log, can be used, saving stock, as well as much time and labor of handling long, broad sheets, and injury of stock from handling, and requiring a minimum of floor space. The conditions under which such cutters are practicable are limited.

We solicit correspondence in regard to them.



52-INCH CLIPPER. Weight—2600 pounds.

BELOW ARE NAMES OF SOME OF THE PARTIES USING OUR

Veneer Machines and Clippers.

W. W. Branch	Charleston, W. Va.
Gorham Bros	Euclid, O. and Mt. Pleasant, Mich.
Baltimore Basket and Package Co	Baltimore, Md.
Frank M. Talbot	Peru, Ind.
Clover Leaf Mfg. Co	Marion, Ind.
C. M. Oviatt	Dover, O.
Anchor Manufacturing Co	Detroit, Mich.
Kerr Barrel Co	Muscatine, Iowa.
Moser & Son	Portland, Oregon.
Winchester Manufacturing Co	Winchester, Tenn.
Muscatine Fence Co	Muscatine, Iowa.
Logan Fence Co	Logan, Iowa.
Acme Fence Co	Trinidad, Colorado.
C. L. King & Co	Montague, Mich.
Chattanooga Basket & Package Co	Chattanooga, Tenn.
Chattanooga Wooden Tray Co	Chattanooga, Tenn.
Fort Payne Basket Co	Fort Payne, Ala.
L. S. Light Orange Box Manufactory	Roddic, Fla.
Pifer & Potter Orange Box Manufactory	Anthony, Fla.
M. D. King & Co. Orange Box Manufactory	Bluffton, S. C.
Richmond Basket Co	Richmond, Va.
Franklin Bros	Harrington, Del.
Bowen Manufacturing Co	Union City, Ind.
Parkersburg Veneer & Panel Co	Parkersburg, W. Va.
J. W. Sefton Manufacturing Co	Anderson, Ind.
Olean Tooth Pick & Basket Co	Olean, N. Y.
Bradford Tooth Pick & Basket Co	Bradford, Pa.
Rochester Basket Co	Rochester, N. Y.
Ravenna Egg Case Co.	Ravenna, O.
Kingsville Basket Co	Kingsville, O.
Ashtabula Basket Co	Ashtabula, O.
Wright Bros. Basket Co	Saybrook, O.
Amos Barlow & Son, Crates	Barnesville, O.
C. A. Miller, Crates	Marietta, O.
Racine Basket Co	Racine, Wis.
Cadillac Veneer Co	Cadillac, Mich.
Tinker & Millard	Kirtland, O.
Record Mfg. Co	Conneaut, O.
Western Crayon Co	Tiffin, O.
Cuba Butter Package Co	Cuba, N. Y.
E. B. Root & Son	Monroe, Mich.
Briggs Manufacturing Co	Edgerton, O.

PREPARING TIMBER.

To answer the frequent inquiries as to the preparation of logs for the cutting and drying of veneers, we give below a few "pointers."

Nearly all kinds of timber which are free from hard knots can be cut.

Fair stock suitable for some purposes, can be cut from fine grain timber 20 to the inch or thinner, "cold" (not steamed), but for thicker stock, all kinds of timber to cut well, should be made soft, flexible and tough by steaming or boiling and be cut while hot.

The various kinds of timber vary so much in their characteristics, such as structure of grain, hardness and density, that no universal rules for steaming can be given, as only a few hours are required to reduce some kinds of timber, while other kinds may require ten times as long. This is a matter that must be largely determined by the experience, judgment and observation of the operator.

SPECIAL EQUIPMENTS.

As the only limit of speed at which a Veneer Machine can do good work is the practical limit of speed at which stock can be received from it and cared for, we sometimes equip belted machines for largest "output" (at an additional expense), with two speeds, fixing one as high as stock can be handled from small logs, the change being made from one to the other without stoppage of machine, thus adding from 10 to 25 per cent. to the possible "output."

The larger, longer heavy machines for heavy work, we sometimes equip with "direct attachment" reversing engines, controlling the speed of machine at the throttle to the highest speed of log through its varying size to the limit of ability to receive the stock, thus doubling the "output" that can be made at a fixed speed.

For the most rapid handling of the machine, we add an independent power dogging and undogging attachment, speeded much higher than the normal speed of the machine, by which much time is saved in changing logs.

SPECIALS.

To meet the demand of special work or special dimensions of stock, we often vary details of construction of our standard machines, or add special equipments.

We are always ready, as far as possible, to meet and conform to the views of practical men, when they order machines for their special work.

AMONG THE SPECIALS WE NAME

THE IMPRESSION ROLLER ATTACHMENT

FOR DIVIDING STOCK TO DIMENSIONS ON THE LOG.

Within its practical limits Impression Rollers are economical and satisfactory where large quantities of uniform dimension stock are required. We name as "practical limits," stock 1/8" to 3/8" thick, 3" wide and wider by 3 or 3½ feet long and under. They are sometimes used for stock outside of these limits, but not always satisfactorily. A single roller can be simply constructed to divide only a limited number of widths and these widths must all be multiples of its circumference. To cover other widths, additional rollers of different sizes, and interchangeable, can be supplied.

They are best adapted for the production of crate stock, some dimensions of furniture and cabinet stock, orange box side, and similar stock.

ADVANTAGES ARE

that they deliver the stock at the veneer knife in complete dimension—direct from the log—in one operation and in shape to be more rapidly handled than in long sheets, allowing a higher working speed to the machine and a consequent larger "output."

The time and labor of handling the sheets to and through a separate dividing machine is saved.

The construction is such, that the roller can be instantly retired from the log (as in "rounding up" or working defective timber), and can be instantly returned to the log, without stoppage of machine.

The roller can remain retired from the log, while cutting general work.

Being **only an attachment**, the whole "rig" can in a few moments be removed from the machine, leaving it clear for general work.

MANUFACTURE.

These machines are our specialty. We complete them only to order. The working parts are all finished to standard sizes and templets. As we keep finished working parts of the various sizes largely in stock, we are able to ship the complete machines within a reasonable time after receiving order with complete specifications; usually within thirty days (sometimes less), except in the very large sizes, or in case of a press of previous orders.

We are prepared to furnish from standard patterns of this date (1891) in sizes as follows, from :

MEDIUM WEIGHT PATTERNS—32 in. Diameter of Swing.

Length of Knife.	Weight.	Length of Knife.	Weight.
24 inches.	4000 pounds.	42 inches.	5100 pounds.
30 "	4200 "	52 "	5500 "
36 "	4700 "	62 "	6200 "

HEAVY WEIGHT PATTERNS—32 in. Diameter of Swing.

Length of Knife.	Weight.	Length of Knife.	Weight.
42 inches.	6200 pounds.	60 inches.	7500 pounds.
52 "	6800 "		

MEDIUM WEIGHT PATTERNS—42 in. Diameter of Swing.

Length of Knife.	Weight.	Length of Knife.	Weight.
36 inches.	5800 pounds.	52 inches.	6500 pounds.
42 "	6000 "	60 "	8000 "

HEAVY WEIGHT PATTERNS—42 in. Diameter of Swing.

Length of Knife.	Weight.	Length of Knife.	Weight.
52 inches.	14500 pounds.	82 inches.	19500 pounds.
58 "	15500 "	88 "	20500 "
64 "	17000 "	100 "	24000 "
76 "	18500 "		

MEDIUM PATTERNS—52 in. Diameter of Swing.

Length of Knife.	Weight.	Length of Knife.	Weight.
42 inches,	10000 pounds.	58 inches.	12000 pounds.
52 "	11000 "	64 "	13500 "

HEAVY PATTERNS—52 in. Diameter of Swing.

Length of Knife.	Weight.	Length of Knife.	Weight.
52 inches.	19500 pounds.	82 inches.	23000 pounds.
64 "	20500 "	88 "	24000 "
76 "	22000 "	100 "	27000 "

HEAVY PATTERNS, with Reversing Engine—Direct Attachment—42 in. Diameter of Swing.

Length of Knife.	Weight.	Length of Knife.	Weight.
76 inches.	23500 pounds.	100 inches.	29000 pounds
88 "	25500 "		

HEAVY PATTERNS, with Reversing Engine—Direct Attachment—52 in. Diameter of Swing.

Length of Knife.	Weight.	Length of Knife.	Weight.
76 inches.	28500 pounds.	100 inches.	35500 pounds.
88 "	32500 "		

We are adding patterns as demand will warrant, and are prepared to make proposals on other specifications of size, diameter of swing, and length of cut, not enumerated above.

TO CORRESPONDENTS.

We ask correspondents to state to us:

FIRST—The extreme diameter and length of log, as well as the shortest length of log they wish a machine to receive and work.

SECOND—The standard thicknesses of stock he wishes to produce.

THIRD—The kinds of timber he proposes to cut.

FOURTH—The kind or class of manufacturers, or market for which the stock is intended.

We can then quote specifications and equipments of machine best adapted to the purposes named, as well as for general work, and can name the lowest figure at which we can furnish the same.

STEAMING.

Large and long logs require to be steamed longer than small and short logs. Steam boxes do not always steam its contents uniformly. While in some parts of the box some logs would be overheated, in other parts the logs would not be hot enough. This may be from the faulty construction of the box in part.

Steamed logs should be cut at once after they have been steamed enough. If they are not then cut, they will soon begin to dry out, become brash and hard, and cannot thereafter be again reduced by steaming. If they remain in the box and are allowed to cool down, the result is similar.

The "boiling" process is preferred by many, requiring a water-tight, covered vat, fill with logs and water, the water being heated by steam. It may require a little more time, but the logs after they have reached the proper cutting condition, may remain in the vat for sometime, even for days without injury, unless the timber becomes colored from foul water.

Some hard "free" timbers should be started at a low temperature—should not be forced or run too hot. Should be given time at a lower temperature, to prevent them from cracking or splitting from the heart outwards, while "cooking," thus wasting much stock.

DRYING.

The proper drying, seasoning and shrinking of veneer stock is a problem with many conditions.

Air drying is nature's process. It takes time, but accomplishes most complete seasoning and shrinkage, and leaves the timber in best working condition.

Some manufacturers stipulate that their cut stock shall be "air dried," thirty, sixty and even ninety days, according to thickness.

For forced drying, warm air circulation kilns, with ventilators or moisture condensers, produce good results.

The problem is one of handling and stowing the stock.

Thickness, length and width of cut stock, dictate largely the stowing or "sticking up" in the kiln.

Stock should be so "stuck up," that surfaces should be equally exposed, that sheets should be sufficiently confined as to prevent undue warping or crinkling, yet they should not be so bound as to cause splits from shrinkage. If ends of thick stock can be partially protected (especially in rapid drying), "season checks" will be prevented.

Stock ⅛″ thick or over, of moderate dimension, for air drying or kiln drying, will do well piled or "stuck up," as is usual with barrel heading with ends lapped.

Full weight of moisture can be quickly extracted from stock by hot steam presses. It is claimed, however, that time thereafter is required to complete shrinkage.